

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims

1 - 5. (canceled)

6. (currently amended) A thin-film semiconductor device comprising an insulator, a polycrystalline layer formed on said insulator, and a transistor comprising a source region, a drain region, a gate region, and a channel region formed at the surface portion of said polycrystalline layer, said polycrystalline layer comprising crystal grains of an element selected from the group of Type-IV elements and their alloys, said crystal grains joined with crystal grain boundaries of {111} twin of Diamond structure,

wherein said insulator is a glass substrate, said polycrystalline layer is a Si thin-film, said Si thin-film has a thickness of 10 to 150 nm, and said Si thin-film has a plurality of crystal grains having {110} planes parallel to the surface of said substrate, and

wherein there is a current path between the source and the drain that is made up only of {110} surface grains.

7. (currently amended) A thin-film semiconductor device comprising an insulator, a polycrystalline layer formed on said insulator, and a transistor comprising a source region, a drain region, a gate region, and a channel region formed at the surface portion of said polycrystalline layer, said polycrystalline layer comprising crystal grains of an element selected from the group of Type-IV elements and their alloys,

said crystal grains joined with crystal grain boundaries of {111} twin of Diamond structure,

wherein in said channel region, two to five crystal grains having the joints of said {111} twin have {110} planes parallel to the surface of said insulator, and have at least one structure coupled at one point on said polycrystalline layer, and

wherein there is a current path between the source and the drain that is made up only of {110} surface grains.

8 - 11. (canceled)

12. (currently amended) A thin-film semiconductor device comprising an insulator, a semiconductor thin-film formed on said insulator and a transistor comprising a source region, a drain region, a channel region and a gate electrode formed at the surface of said semiconductor thin-film, said semiconductor thin-film having amorphous regions of Type-IV element and dendrite crystal regions of Type-IV element connecting said source region and said drain region,

wherein two to five grains having the joints of {111} twins have {110} planes parallel to the surface of said insulator and at least one structure coupled at one point on said dendrite crystals, in said channel region, and

wherein there is a current path between the source and the drain that is made up only of {110} surface grains.

13 - 30. (canceled)

31. (currently amended) A thin-film semiconductor integrated circuit device as ~~claimed in claim 30~~ comprising a semiconductor thin-film layer provided at the upper part of an insulator, a plurality of insulated-gate semiconductor elements formed at said semiconductor thin-film layer, each of said semiconductor elements having a gate electrode separated from said semiconductor thin-film layer by a gate insulating film at the surface of said semiconductor thin-film layer, and a seed crystal metal located between at least two of said gate insulating films and provided on the surface of said semiconductor thin-film layer except for the areas just under said gate insulating films

wherein said semiconductor thin-film layer in contact with said gate insulating film has semiconductor crystalline grains joined by {111} twin boundaries of Diamond structure, and

wherein there is a current path between the source and the drain that is made up only of {110} surface grains.

32 - 36. (canceled)

37. (currently amended) A thin-film semiconductor device comprising an insulator, a semiconductor thin-film formed on said insulator and a transistor comprising a source region, a drain region, a channel region and a gate electrode formed at the surface of said semiconductor thin-film, said semiconductor thin-film having amorphous regions of Type-IV element and dendrite crystal regions of Type-IV element connecting said source region and said drain region, wherein said dendrite crystal regions are branching from one slender single crystal grain having {110} plane parallel to said substrate surface and {111} plane vertical to the major

axis of the branch, said plurality of branches are joined with each other in any angle of 39.0°, 70.5° and 109.5°, and the joint surface thereof is {111} twin of Diamond structure, and

wherein there is a current path between the source and the drain that is made up only of {110} surface grains.

38. (currently amended) A semiconductor device comprising an insulator; a semiconductor layer having a plurality of semiconductor crystalline grains provided at the upper part of said insulator to have one main surface, said semiconductor crystalline grains having {110} planes to form said main surface, the interfaces of which are joined by {111} twin-boundaries; and a gate electrode covering said main surface of said semiconductor layer via an insulating film, and

wherein there is a current path between the source and the drain that is made up only of {110} surface grains.